PITKINS CURVE : RAIN ROCKS

CALIFORNIA 1

Highway Improvement Project

PUBLIC HEARING

Tuesday, March 21, 2006

Open House: 5:00 p.m. to 8:00 p.m.
With a brief presentation at 6 p.m.

Big Sur Lodge (Conference Room)

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PITKINS CURVE : RAIN ROCKS

CALIFORNIA 1

Highway Improvement Project

PUBLIC HEARING

Wednesday, March 22, 2006

Open House: 5:00 p.m. to 8:00 p.m.
With a brief presentation at 6 p.m.
Cambria Veterans Hall

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PUBLIC HEARING

Please **Sign In** *at the Welcome Table*

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PITKINS CURVE : RAIN ROCKS

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Highway Improvement Project

WHY ARE WE HERE?

- To offer you an opportunity to learn about the project
- To discuss the project alternatives and environmental studies
- To answer your questions
- To receive your comments

Take a look at the displays, discuss the project with Caltrans staff and other interested people, attend the question/answer presentation, make comments.

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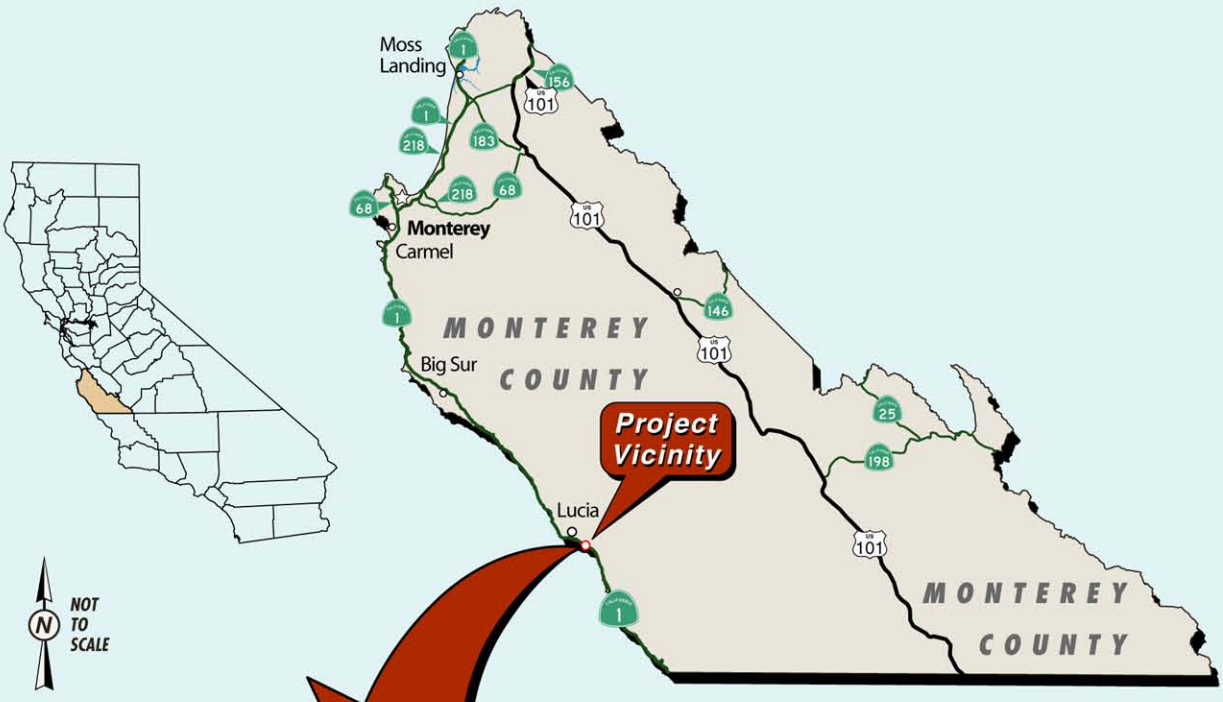
LOCATION & VICINITY



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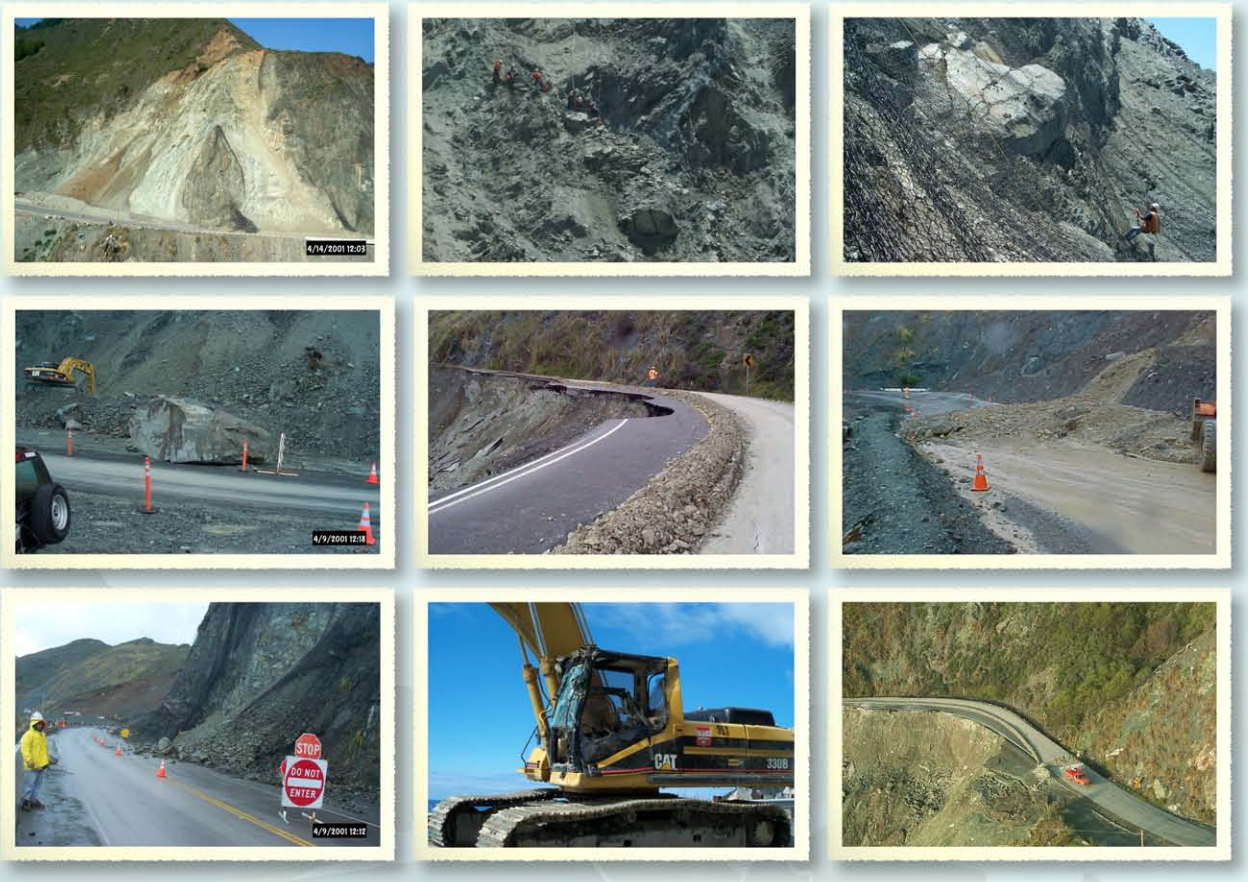
PROJECT PURPOSE

The purpose of the Pitkins Curve / Rain Rocks improvements project is to:

- Substantially decrease maintenance expenditures
- Appreciably increase roadway reliability, dependability and safety
- Increase highway worker safety
- Minimize environmental impacts



PROJECT NEED

- **It costs more to restore and maintain this location than any other location on the Big Sur Coast Highway.**
  - Between 1998 and 2004, about $8 million was spent at Pitkins Curve/ Rain Rocks to keep Highway 1 open
  - Costs range between $0.5 million and $3.4 million a year, in response to the magnitude of damage inflicted by landslides
  - Caltrans spends more than one million dollars a year at Pitkins Curve/Rain Rocks, by comparison other locations require between $10,000 and $20,000 each year
  - The cost to restore and maintain Pitkins Curve/Rain Rocks is difficult to forecast and availability of emergency funding can be uncertain
- **The Big Sur community relies on Highway 1, the Big Sur Coast Highway, as its sole transportation corridor for essential and emergency services and to support its tourist economy.**
  - There are no reasonable alternate routes for travel when Highway 1 is closed
  - Ninety-five percent of vehicles travelling through Pitkins Curve/Rain Rocks are visiting from out of the area
  - When travel is disrupted the local and regional tourist economies are profoundly affected
- **Unpredictable and extensive landslides repeatedly occur at Pitkins Curve/Rain Rocks, reducing or severing travel on Highway 1 for months at a time.**
  - In 1998, 2000 and 2001 roadway restoration closed Pitkins Curve/Rain Rocks for at least a month then limited it to one lane for several months afterwards
  - Restoration increases the number of large trucks on Highway 1 and causes additional traffic disruption
- **Highway workers regularly operate in areas of active rockfall while restoring and maintaining the roadway at Pitkins Curve/Rain Rocks.**
  - Highway workers operate during active periods of instability
  - Highway workers scale cliffs to remove boulders
  - Highway workers remove rocks from behind protective barriers
  - Traffic moving through a work area is a safety concern as well, especially when rockfall causes vehicles to make evasive maneuvers
- **The hillsides will continue to slide, the highway will be damaged repeatedly, and it will likely be closed again.**
  - Emergency highway work restricts highway restoration methods
  - Environmental impacts, particularly those associated with soil disposal, are difficult to avoid or minimize when emergency restoration work is undertaken
  - The capacity of nearby soil disposal sites is limited and diminishing

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SUMMARY OF HIGHWAY REPAIRS

Summary of Highway Repairs at Pitkins Curve/Rain Rocks:

YEAR	LOCATION	INSTABILITY	RESTORATION ACTIVITIES	AMOUNT MATERIAL REMOVED (cubic yards)	# TRUCK-LOADS	DAYS HWY CLOSED	DAYS OF ONE-LANE	AMOUNT SPENT
1998	Rain Rocks	Rockfall on viaduct construction	Cover slope with low energy wire mesh drapery, 313, 000 ft^2	100	7	20	20	$1,000,000
	Pitkins	Landslide below highway removes SB lane	Build up embankment below rd; restore lane	100,000	7000	30	150	$1,000,000
1999	Rain Rocks	Rockfall	Remove material	100	7	2	2	$50,000
	Pitkins	Landslide	Remove material	100	7	2	2	$50,000
2000	Rain Rocks	N. chute rockfall intensifies	Build temporary barrier, 100 ft long	100	7	2	2	$50,000
	Pitkins	Landslide below hwy removes 100 m of both lanes	Move highway alignment inland; restore hwy; remove material	100.000	7000	30	60	$3,400,000
2001	Rain Rocks	Increased rockfall intensity at N. chute	Cover north chute with high energy cable mesh drapery, 60,000 ft^2	100	7	20	20	$500,000
	Pitkins	Landsliding above hwy	Construct earth berm and catchment; remove material	20,000	1400	5	15	$1,000,000
2002	Rain Rocks	Rockslide above roadway	Routine clean out of catchment area	100	7	2	2	$30,000
	Pitkins	Landsliding above hwy	Routine clean out of catchment area	10,000	700	5	10	$300,000
2003	Rain Rocks	Rockslide above roadway	Routine clean out of catchment area	100	7	2	2	$30,000
	Pitkins	Landsliding above hwy	Routine clean out of catchment area	10,000	700	5	10	$300,000
2004	Rain Rocks	Rockslide above roadway	Routine clean out of catchment area	100	7	2	2	$30,000
	Pitkins	Landsliding above hwy	Routine clean out of catchment area	10,000	700	5	10	$300,000

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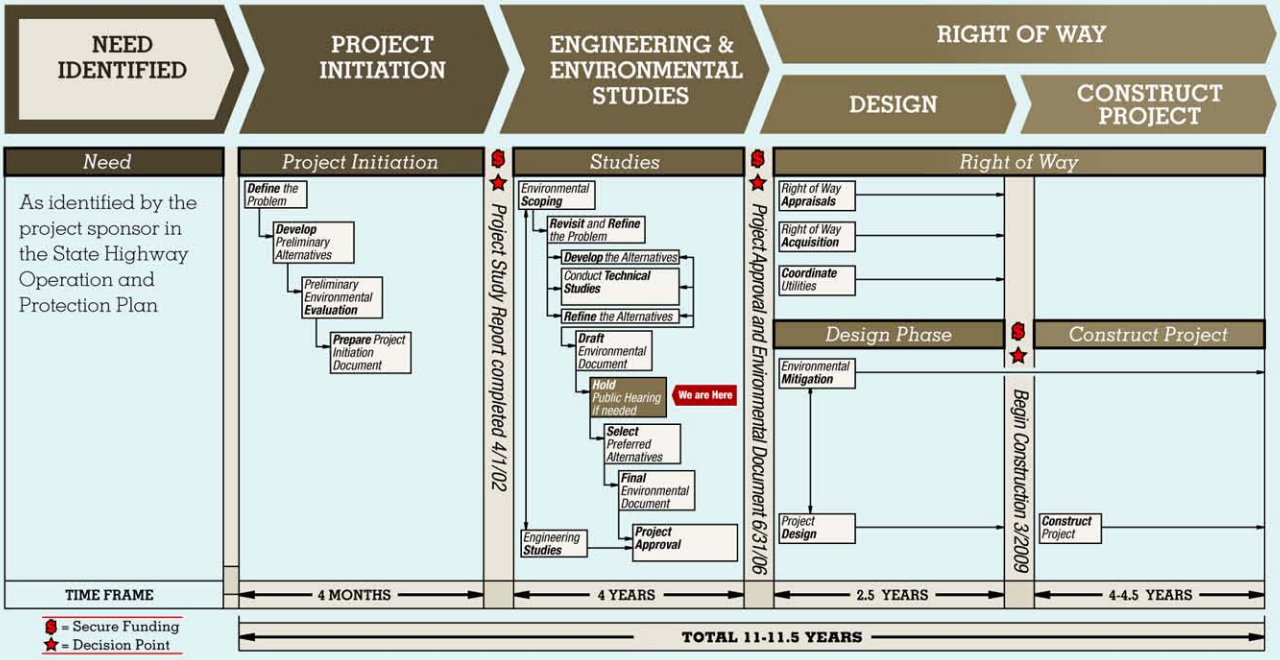
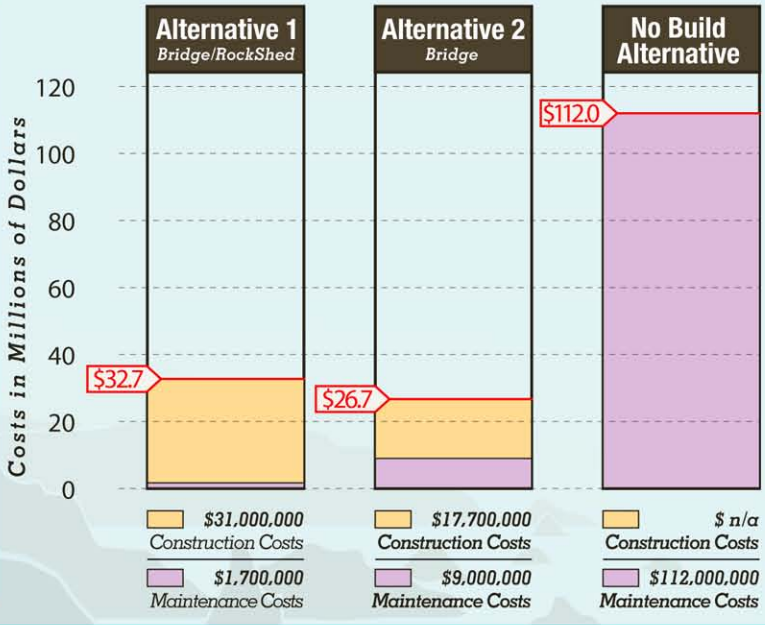
SCHEDULE & COSTS

How a project gets built:



Average cost to build and maintain each alternative over the 50-year life span of the project:

- Construction costs are the ***average of the estimated cost range*** for each alternative.
- Maintenance activities include annual removal of soil and regular replacement of rock net. Costs were based on the last six years of actual maintenance expenditures and escalated for the estimated life span of the project, which is 50 years, using a 3% annual inflation rate.
- In the event of a catastrophic failure, the cost to restore the highway is estimated to be in excess of $45.0 million.



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PROJECT ALTERNATIVES

Project Alternatives:

- Alternative 1: *Bridge at Pitkins Curve with rock shed at Rain Rocks*
- Alternative 2: *Bridge at Pitkins Curve with continued active management at Rain Rocks*
- No-build Alternative: *Continued active management at Pitkins Curve and Rain Rocks*

Bridge: *Included in Alternative 1 and 2*	▪ Straighten the roadway and construct a 525 foot-long, two-lane bridge at Pitkins Curve to span the landslide. ▪ Two 12-foot wide lanes with 4-foot wide shoulders. ▪ Existing telephone lines relocated with ultimate placement in pipes across the bridge.
Rock Shed: *Included in Alternative 1*	▪ Rock shed would be a 240-foot long concrete structure with a thick slanted roof built up against the hillside and over the roadway. On the ocean side, columns support the roof and provide partial views of ocean. ▪ Roadway under the rock shed would have two 12-foot wide lanes with 4-foot wide shoulders. ▪ Lighting could be included in the rock shed. ▪ About half of the rock netting would be removed.

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PREFERRED ALTERNATIVE

Caltrans Prefers Alternative 1: Build a bridge at Pitkins Curve and a rock shed at Rain Rocks:

- The bridge and rock shed provide the most reliable and dependable transportation facility.
- Over the life of the project (50 years) the cost of building and maintaining the bridge and rock shed (Alternative 1) is comparable to the cost of building the bridge and continuing with active management of the Rain Rocks location (Alternative 2).
- The bridge and rock shed minimize the time highway workers would operate in rock fall areas, as well as increasing roadway dependability and safety.
- Building the bridge and rock shed concurrently under a single construction contract would take less time and cost less than building them sequentially under separate construction contracts.

What do you think?


ALTERNATIVE 1


ALTERNATIVE 2


EXISITING VIEW

ALTERNATIVES WITHDRAWN

These alternatives were studied and withdrawn from consideration:

Tunnel

- From Limekiln Bridge north to beyond Pitkins Curve; 1500 feet in length
- Major retaining structures above the roadway at the tunnel entrance and exit
- 1,000,000 cubic yards of rock and soil generated for disposal
- Impacts to the campground at Limekiln Creek, threatened and endangered species, wetlands, cultural resources and a loss of a quarter mile of views to the ocean were anticipated.
- Construction costs estimated at between $73 and $100 million; construction duration over five years.
- ***This alternative was withdrawn from consideration because of the difficulty of construction, high cost, potential for significant visual impacts, and impacts to recreation, cultural, and biological resources.***

Realign Highway Inland

- Move highway alignment inland and cut slope back to top of ridgeline; slide below roadway would remain
- 500,000 cubic yards of rock and soil generated for disposal
- Environmental impacts and would have been among the greatest of all alternatives
- Construction costs estimated at $45 million
- ***This alternative was withdrawn from consideration because of the high cost, extensive impacts to the natural environment, and traffic disruption during construction.***

Retaining Wall and Reinforced Embankment

- Build wall or reinforce embankment below roadway to buttress the roadway and isolate it from landslide.
- 55 feet high, 300 feet long.
- Construct substantial catchment ditch for rockfall and rockslides that would continue to occur above roadway
- ***This alternative was withdrawn from consideration because it could not be considered a long-term or permanent solution.***

Place Rock Net Above Pitkins Curve

- ***This alternative was withdrawn because the slope above Pitkins Curve is too unstable to allow anchoring of these protective devices.***

Continuous Rock shed

- Rock shed covering from Rain Rocks to Pitkins Curve aligned to hug slope with down-slope retaining wall.
- Length of the continuous rock shed and retaining wall 700 feet long, 25 feet high.
- Construction costs estimated at $25 million.
- ***This alternative withdrawn because the continuous rock shed alignment would have required sharp turns within the rock shed and limited the driver's ability to see around the curves, causing unsafe driving conditions.***

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VISUAL IMPACTS

Summary of Visual Effects:

The visual analysis found that both alternatives would affect the visual character of the area. Community sensitivity to visual issues is considered very high, and is reflected in the route's national and state scenic designations, the Monterey County Local Coastal Plan and the Big Sur Coast Highway Management Plan.

Bridge:

The Pitkins Curve bridge, proposed with Alternative 1 and 2, would be consistent with viewer's expectations. Although the bridge would introduce a newly "built" element into the landscape, its visual presence would not appear uncharacteristic with the overall Highway 1 experience and would be perceived as just one more of the several existing bridge structures along the coast. Thoughtful bridge design, responsive to the corridor setting, could result in a structure with few or no adverse long-term visual impacts.

Rock Shed:

Of the two alternatives, Alternative 1 would result in the greatest amount of visual change, due to the rock shed. Because of its scale and position above the road, it would be a noticeable and unavoidable visual element. It is likely the rock shed would become a landmark based on its uniqueness and noticeability. The inherent function and form of the rock shed would make it difficult to blend the structure into the adjacent landscape. Its basic large-scale and engineered character would persist regardless of engineering and architectural efforts. Viewer response to the rock shed will vary. To most viewers, construction of this dominant concrete structure would appear out-of-scale and incompatible with the rural character of the Big Sur coast. However, a percentage of the travelling public would see the rock shed as an extraordinary engineering feat. Moving through the rock shed would be reminiscent of a tunnel and would be a memorable experience for certain viewers.

With implementation of recommended minimization and mitigation measures, potential long-term adverse visual impacts caused by both alternatives would be reduced. The visual effects of Alternative 2 would be reduced to a less-than significant level. However, even with these measures, significant adverse residual impacts would result with the construction of Alternative 1.

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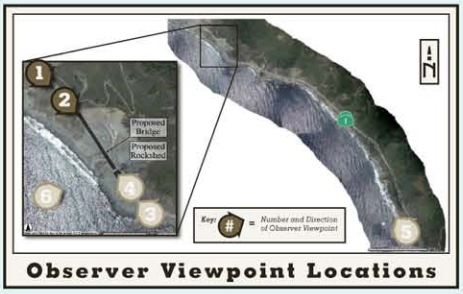
VISUAL SIMULATIONS

Photo-simulations

The photo-simulations offer an approximation of the basic mass, location and scale of the project elements in generic form. These are not intended to suggest or commit to specific aesthetic treatments to the bridge, rock shed, or other structures. In reality, a variety of design options are possible, and the final appearance of these structures will not be determined until we've heard from the community.



Observer Viewpoint Locations

1 **Photo-Simulation: Viewpoint 1**
*Southbound view from 0.5 mile north of the project site.**

2 **Photo-Simulation: Viewpoint 2**
*Southbound view from 200 feet north of the project site.**

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VISUAL SIMULATIONS

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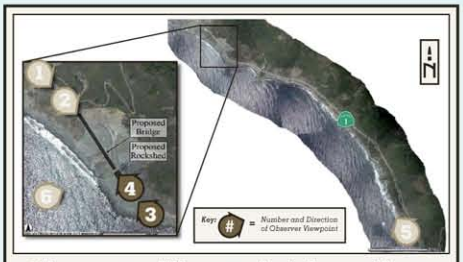
3 **Photo-Simulation: Viewpoint 3**
View from northbound at the proposed rock shed location.



Observer Viewpoint Locations

4 **Photo-Simulation: Viewpoint 4**
Northbound view from 200 feet south of the project site.

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VISUAL SIMULATIONS

Photo-simulations

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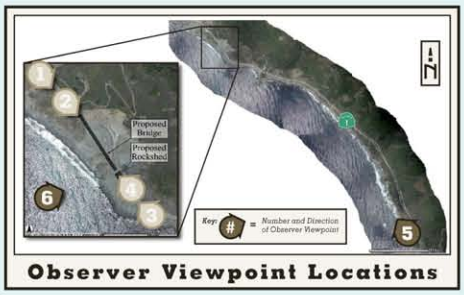
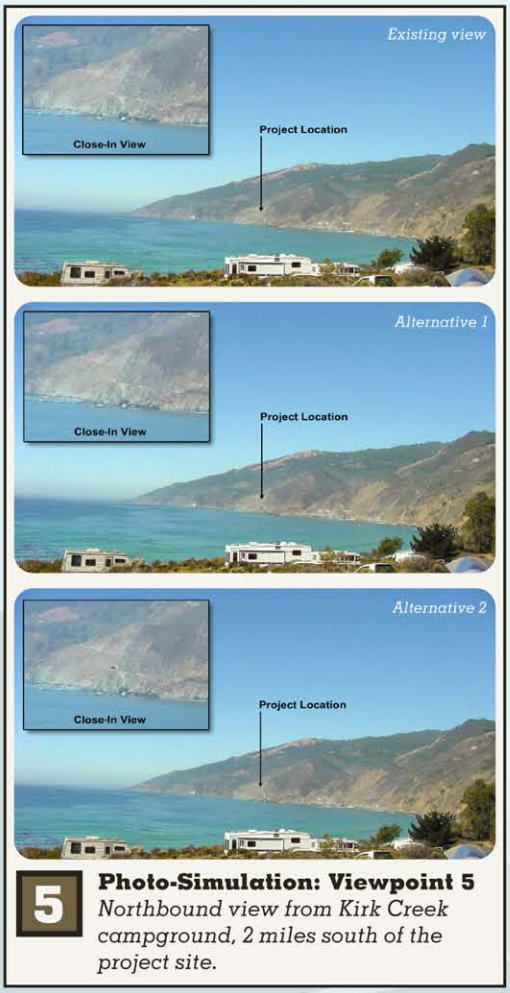


Observer Viewpoint Locations



5 **Photo-Simulation: Viewpoint 5**
Northbound view from Kirk Creek campground, 2 miles south of the project site.

6 **Photo-Simulation: Viewpoint 6**
View of the project site from off-shore.

ENVIRONMENTAL STUDIES

The environmental studies found no impacts to the following:

- Land Use: Approximately 1.7 hectares (4.25 acres) of land, which is currently part of Limekiln State Park would be included in the construction area as part of this project. Caltrans is currently negotiating with State Parks to purchase the land. No additional conversions are anticipated with this project.
- Cultural Resources: There are no prehistoric or historic archaeological resources within the project area.
- Water Quality and Storm Water Runoff: The major water body in the project area is the Pacific Ocean. By incorporating proper and accepted engineering practices and best management practices, the project would not impact water quality.
- Paleontology: The project is not expected to encounter paleontological resources.
- Hazardous Waste/Materials: The project area was investigated for potential involvement with aerially deposited lead, structures with lead-based paint and asbestos-containing materials, and hazardous materials. The study found no evidence that the project would encounter any hazardous materials.
- Air Quality: There will be no increase in traffic volumes or speeds with the proposed project and, therefore, no increase in long-term air emissions.
- Noise: There will be no increase in traffic volumes with the proposed project and, therefore, no increase in long-term noise levels.

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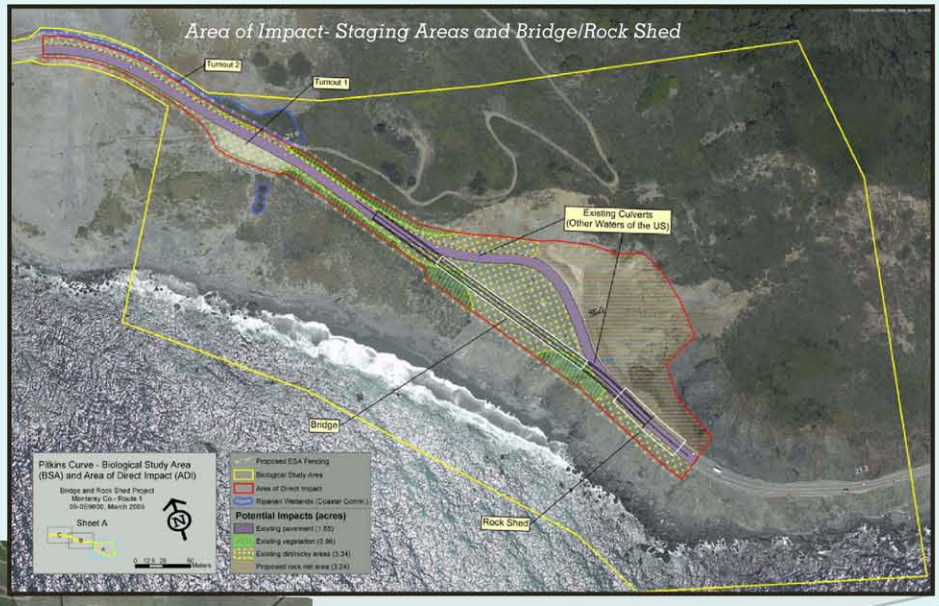
BIOLOGICAL STUDIES

No impacts are anticipated to biological and natural resources at Pitkins Curve and Rain Rocks:



California Condor

Southern Sea Otter

Smith's Blue Butterfly and Sea Cliff Buckwheat Host Plant

Special status species were evaluated and discussed in the biological and environmental reports and avoidance and minimization measures are recommended.

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NEARBY PROJECTS CUMULATIVE IMPACTS

Nearby Projects:

- Pitkins Curve Pilot Project *(Postmile 21.5)*

  Soil generated from the active slide at Pitkins Curve has been placed below the highway, behind a constructed dirt berm to mimic the natural processes of landslide material making its way naturally to the sea. Soil movement is being monitored for three years to assess the effects of this process on the marine environment. This project is funded, the environmental determination has been completed, permits have been secured and the project is on-going.

- Limekiln Creek Bridge *(Postmile 21.1)*

  Augmentation of the Limekiln Creek Bridge north abutment will be undertaken to address erosion caused by moving water. The project is a candidate for funding this year with completion of the environmental document anticipated in 2008 and start of construction expected in 2010.

- Hermitage Slope Retaining Wall *(Postmile 21.9/22.1)*

  A soldier pile tieback retaining wall with treated timber lagging will be built to support the highway embankment. A steel-backed timber guardrail will be placed along the outside shoulder. Construction would generate about 3,340 cubic yards of soil, which would be taken to a nearby inland site, placed and planted with native grasses and shrubs. The project is funded and environmental compliance was completed in 2004. Permits have been obtained. Construction is scheduled to start in 2006 and be completed in 2007.

Cumulative Impacts:

Construction of either one of the project alternatives would, when considered in conjunction with the projects discussed above, result in the greatest concentration of highway structures on the Big Sur coast highway. Both project alternatives would contribute to a cumulative increase in the overall built character of the highway. To mitigate the impact, the project proposes to retrofit or replace the existing bridge rail on the Rain Rocks viaduct to complement any new structure(s) built as a result of this project.

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CONSTRUCTION IMPACTS

Temporary Construction Impacts:

- The proposed bridge and rock shed would be very large structures and building them would be involved and challenging, particularly because the project site is remote and surrounded by steep slopes, leaving little room to store and operate equipment outside the roadway.
- Portions of the roadway itself and eight paved turnouts, within a mile north of the project, would be used for construction.

The following table describes construction activities proposed for each alternative.

CONSTRUCTION ACTIVITIES	ALTERNATIVE 1	ALTERNATIVE 2	NO-BUILD ALTERNATIVE
Duration	Approximately 922 working days, equaling about 4.5 years.	Approximately 822 working days, equaling about 4.0 years.	On-going
Excess Material	Alternative would result in 14,500 cubic yards of excess material.	Alternative would result in 29,000 cubic yards of excess material.	Up to 100,000 cubic meters of excess material from unpredictable landslide and rockfall. Between 10,000 and 30,000 cubic meters of excess material from annual routine maintenance.
Traffic	Restriction of roadway to one lane on non-holidays during non-summer months for duration of construction. Nighttime full closures. Traffic flow impacts from scheduled increased heavy equipment traffic. Avoidance and minimization measures proposed.	Restriction of roadway to one lane for about a month. Nighttime full closures. Traffic flow impacts from scheduled increased heavy equipment traffic. Avoidance and minimization measures proposed.	Unscheduled and potentially extensive full lane closures and lane restrictions due to landslides and rockfall. Occasional regular closures and traffic disruption due to annual maintenance cleanup activities.
Noise	Increased noise at construction site. Increased noise (of 1 dBA) would be imperceptible at nearby sensitive receptors. Avoidance and minimization measures proposed.	Increased noise at construction site. Increased noise (of 1 dBA) would be imperceptible at nearby sensitive receptors. Avoidance and minimization measures proposed.	Increased noise at construction site. Increases of 1 dBA from unscheduled and annual maintenance activities would be imperceptible at nearby sensitive receptors.
Water Quality	Potential for suspended solids, dissolved solids, and organic pollutants to be introduced into the ocean. A Storm Water Pollution Prevention Plan would be implemented to reduce or eliminated sediment and other pollutants in storm water as well as non-storm water discharges.	Potential for suspended solids, dissolved solids, and organic pollutants to be introduced into the ocean. A Storm Water Pollution Prevention Plan would be implemented to reduce or eliminated sediment and other pollutants in storm water as well as non-storm water discharges.	Potential for suspended solids, dissolved solids, and organic pollutants to be introduced into the ocean.
Air Quality	No exceedances anticipated.	No exceedances anticipated.	No exceedances anticipated.
Site Appearance	Temporary impacts from earth movement, distracting activities, and storage of equipment and materials. Avoidance and minimization measures included.	Temporary impacts from earth movement, distracting activities, and storage of equipment and materials. Avoidance and minimization measures included.	Permanent impacts from earth movement, distracting activities, and storage of equipment and materials.

There are no effects anticipated to cultural resources or paleontological resources during construction.
No involvement with hazardous waste is anticipated during construction.

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PUBLIC COMMENT

There are four ways you can provide input:

- Written comments may be placed into the comment box.
- Record verbal comments to the court reporter tonight.
- Written comments may be directly mailed to:

CALTRANS DISTRICT 5
Environmental Branch
Wendy Waldron
50 Higuera Street
San Luis Obispo, CA 93401
or
E-mail: wendy_waldron@dot.ca.gov

- Comments may be faxed to (805) 549-3233 Attn: Wendy Waldron

Please submit comments by April 7, 2006.

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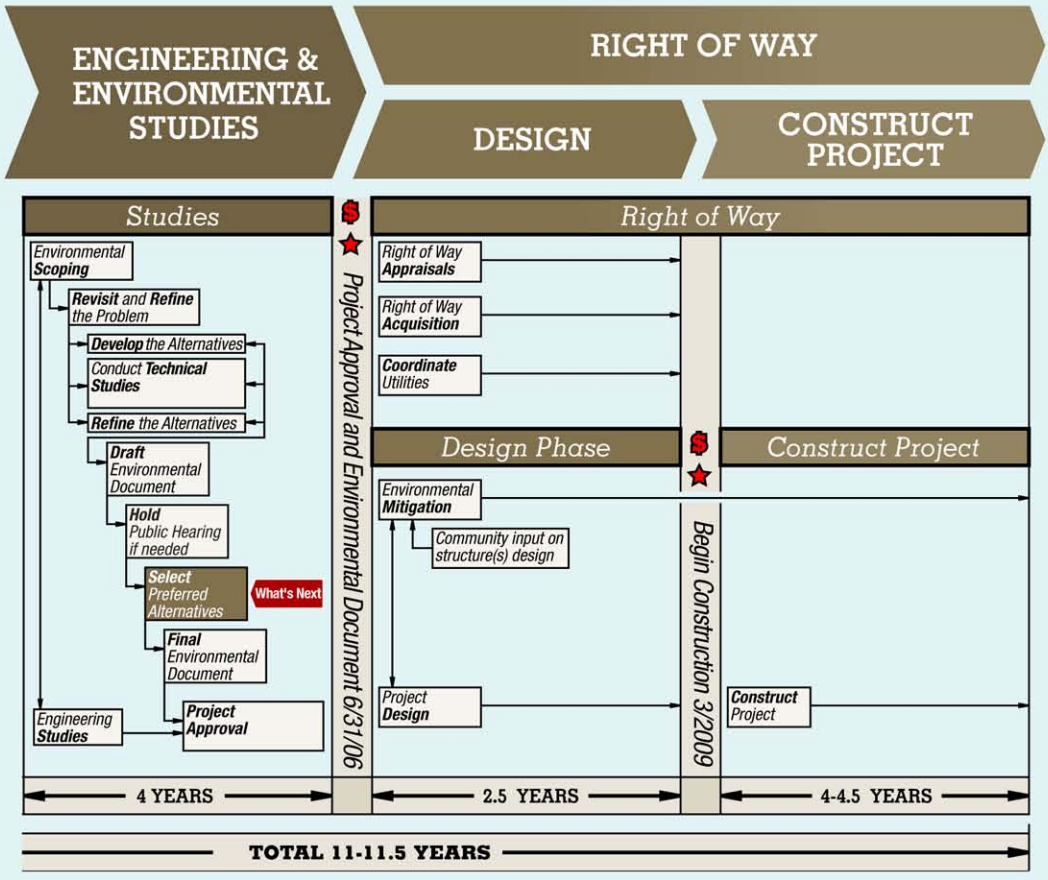
WHAT'S NEXT?



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